

IN THE CLAIMS:

1. (Currently Amended) A power amplifier module comprising:
  - a power amplifier circuit (201) having a power supply regulated output power level;
  - a power supply transistor (207) coupled to the power amplifier circuit (201) and operable to control a power supply to the power amplifier circuit (201) in response to a drive signal;
  - a drive circuit (209) coupled to the power supply transistor (207) and operable to generate the drive signal in response to a power level input signal;characterized by further comprising:
  - means (211) for determining an operating characteristic of the power supply transistor (207); and
  - a control circuit (213) coupled to the drive circuit (209) and operable to control the drive signal in response to the operating characteristic.
2. (Currently Amended) A power amplifier module as claimed in claim 1, wherein the operating characteristic is a saturation characteristic.
3. (Currently Amended) A power amplifier module as claimed in ~~any previous~~ claim 1, wherein the operating characteristic is an operating gain characteristic.
4. (Currently Amended) A power amplifier module as claimed in ~~any previous~~ claim 1, wherein the control circuit (213) comprises a negative feedback loop from the means for determining (211) to the drive circuit (209).
5. (Currently Amended) A power amplifier module as claimed in ~~any previous~~ claim 1, wherein the power supply transistor (207) is a Field Effect Transistor (~~FET~~).
6. (Currently Amended) A power amplifier module as claimed in claim 5, wherein the control circuit (213) is operable to control the drive signal to substantially prevent the power supply transistor (207) from entering a FET linear region operating state.
7. (Currently Amended) A power amplifier module as claimed in ~~any previous~~ claim 6, wherein the means for determining (211) comprises a sense transistor (329) operable to detect a drain- gate voltage of the power supply transistor (207).

8. (Currently Amended) A power amplifier module as claimed in claim 7, wherein the sense transistor (329) is operable to conduct a current if the power supply transistor (207) enters a FET linear region of operation and the control circuit (213) is operable to control the drive signal in response to the current.

9. (Currently Amended) A power amplifier module as claimed in claim 8, wherein the sense transistor (329) conducts current if a drain-source voltage of the power supply transistor (207) is below a gate-source voltage minus a threshold voltage of the power supply transistor (207).

10. (Currently Amended) A power amplifier module as claimed in claim 8, or 9 wherein the control circuit (213) is operable to reduce an absolute amplitude of the drive signal in response to the sense transistor (329) conducting the current.

11. (Currently Amended) A power amplifier module as claimed in ~~any previous~~ claim 8, to 10 wherein a gate of the sense transistor (329) is connected to a gate of the power supply transistor (207) and a source of the sense transistor (329) is connected to a drain of the power supply transistor (207).

12. (Currently Amended) A power amplifier module as claimed in ~~any previous~~ claim 7, to 11 wherein the sense transistor (329) has a threshold voltage similar to the threshold voltage of the power supply transistor (207).

13. (Currently Amended) A power amplifier module as claimed in ~~any previous~~ claim 7, to 12 wherein the control circuit (213) comprises an output transistor (331) coupled to the sense transistor (329) and to a signal junction in the drive circuit (209) such that if the sense transistor (329) conducts current, the output transistor (331) becomes active and causes a signal level at the signal point to be reduced.

14. (Currently Amended) A power amplifier module as claimed in claim 13, wherein the sense transistor (329) is connected to a first input of a current image circuit (333, 335) and the output transistor (331) is connected to a second input of the current image circuit (333, 335).

15. (Currently Amended) A power amplifier module as claimed in ~~any previous~~ claim 11, wherein a supply voltage for the power supply transistor (333, 335) is a variable voltage.

16. (Currently Amended) A power amplifier module as claimed in ~~any previous~~ claim 14, wherein the power supply transistor (~~333, 335~~) is a bipolar transistor

17. (Currently Amended) A power amplifier module as claimed in claim 16, wherein the control circuit (~~213~~) is operable to control the drive signal to substantially prevent the power supply transistor (~~333, 335~~) from entering a bipolar transistor saturated region.

18. (Currently Amended) A power amplifier module as claimed in claim 16, ~~or 17~~ wherein the means for determining (~~211~~) comprises a bipolar sense transistor operable to detect a collector- base voltage of the power supply transistor (~~333, 335~~).

19. (Currently Amended) A Time Division Multiple Access radio comprising:  
means for generating a power ramp signal;  
a power amplifier circuit (~~201~~) having a power supply regulated output power level;  
a power supply transistor (~~207~~) coupled to the power amplifier circuit (~~201~~) and operable to control a power supply to the power amplifier circuit (~~201~~) in response to a drive signal;

a drive circuit (~~209~~) coupled to the power supply transistor (~~207~~) and operable to generate the drive signal in response to the power ramp signal;

characterized by further comprising:

means for determining (~~211~~) an operating characteristic of the power supply transistor (~~207~~); and

a control circuit (~~213~~) coupled to the drive circuit (~~209~~) and operable to control the drive signal in response to the operating characteristic.